

**REMARKS**

Claims 1-37 are pending in the application.

Claims 1-37 have been rejected.

Claims 1, 4, 7, 8, 13, 16, 19, 24, 27, 29, 30, 33 and 35 have been amended.

Applicants note that Claims 1, 4, 8, 13, 16, 24, 27, 30, and 33 have been amended by replacing the term “bandwidth” with “transmission rate” and “bandwidth capacity” with “maximum transmission rate.” Applicants do not intend such an amendment to narrow the scope of the claims, but to merely provide clarity and to aid in distinguishing the present invention from the cited art. Applicants submit that the original application provides support for these amendments at least at page 5, lines 20-31.

**Rejection of Claims under 35 U.S.C. § 112**

Claims 1, 8, 12, 13, 23, 24, and 30 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Office Action states “the claims contain subject matter which was not described in the Specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.”

The stated claims stand rejected for the general reason that material added to those claims by the Preliminary Amendment accompanying the Request for Continued Examination filed on August 31, 2005 is “not supported by the original disclosure.” *See* Office Action, p. 4. The implicated claim language is repeated through the claims and so Applicants will respond to the cited language in Claim 1 with the understanding that the related discussion applies to all of the above-listed claims.

The Office Action states that the following language from Claim 1 is purportedly not supported by the Specification: "wherein said decomposing comprises placing a selected portion of the input datastream into a selected one of a plurality of channels, and a sub-stream of said sub-streams comprises the selected portion of the input datastream." Applicants respectfully submit that the cited claim language finds support in the original Specification at least in the following text:

The high-speed datastream can be decomposed into sub-streams in any one of a number of ways. For example, a simple round-robin technique may be employed where a portion of the high-speed datastream is periodically placed in one of a number of queues, each corresponding to one of the channels. A variation of this concept that includes framing and other mechanisms is discussed in the provisional patent application entitled, "METHOD AND APPARATUS FOR WAVELENGTH CONCATENATED CHANNEL FRAMING," as previously included by reference herein.

Application, p.17, ll.11-18 (citing U. S. Provisional Application 60/270,444).

The Office Action further suggests that the following language finds no support in the original Specification: "communicating said sub-streams between a first network element and a second network element of said network by transporting each one of said sub-streams over a corresponding one of a plurality of channels, wherein a bandwidth of said input datastream is greater than a bandwidth capacity of any one of said channels." Office Action, pp. 4-5. Applicants respectfully submit that the phrase "a corresponding one of a plurality of channels" can find support in the original Specification at least in the following text:

In another embodiment of the present invention, a method for receiving information transported over a network is disclosed. The method includes receiving a number of sub-streams and assembling the sub-streams into a reconstructed datastream. The sub-streams are created by decomposing a datastream into the sub-streams. Each of the sub-streams is transported over the network on a corresponding one of a number of channels. A Bandwidth of the datastream is greater than a bandwidth of any one of the channels.

Application, p.9, ll.8-14 (emphasis added). Applicants further submit that the language related to “bandwidth capacity” finds support in the original Specification at least at page 5, lines 20-31. However, Applicants call to the Examiner’s attention that the objected to claim language, “bandwidth capacity,” has been amended by the above amendments to Claim 1 and other claims including the phrases “bandwidth” and “bandwidth capacity”; therefore, Applicants respectfully submit that this rejection has been rendered moot.

The Office Action further posits that the phrase “selected” in Claim 8 and the phrases “the queue” and “the selected” in Claim 12 are unsupported in the original application. Applicants respectfully submit that at least the previously quoted section of the original Application at page 17, line 11-18 provides support for these phrases.

For at least the above reasons, Applicants respectfully submit that the rejections under 35 U.S.C. § 112 para. 1 as to Claims 1, 18, 12, 13, 23, 24, and 30 have been responded to and traversed, and therefore request that those rejections be reconsidered and withdrawn by the Examiner.

#### Rejection of Claims under 35 U.S.C. § 102

Claims 1-6, 9-18, 20-28 and 30-34 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U. S. Patent No. 5,710,650 issued to Dugan (“Dugan”). Applicants respectfully traverse this rejection.

Claim 1 of the present invention recites the following limitations:

- “Decomposing an input datastream into a plurality of sub-streams, wherein said decomposing comprises placing a selected portion of the input datastream into a selected one of a plurality of channels...”
- “Communicating said sub-streams between a first network element and a second network element of said network by transporting each one of said sub-streams over a corresponding one of a plurality of channels, wherein a transmission rate of said input datastream is greater than a maximum transmission rate of any one of said channels.”

*See* Claim 1. While the Office Action suggests that Dugan provides enabling disclosure of these limitations of Claim 1 and the other cited claims, Applicants respectfully submit that Dugan in fact teaches away from the concepts embodied in these claims of the present invention.

Applicants present the following explanation to aid the Examiner in distinguishing between the present Application and Dugan. The Application acknowledges that existing communication circuits in large area networks, such as provider networks, are limited in their bandwidth capacity (or maximum transmission rate) due to legacy equipment in those network. *See, e.g.*, Application, p.5. Existing optical fibers and cables in provider networks can be expensive to replace with higher transmission rate equipment and fibers/cables. The Application further acknowledges that customers of provider networks may have high bandwidth datastreams to transport over a provider network that require a transmission rate that is higher than that available on any single circuit provided by a provider network. *See, e.g.*, Application, p.6. The prior art provides no way for a customer to transport such a high transmission rate datastream through a provider network that does not have single circuits capable of transmitting such a datastream. Applicants' claimed invention addresses this problem by decomposing the high data rate datastream into multiple sub-streams, each of which has a lower data rate than that of the original high data rate datastream. *See, e.g.*, Application, p.11. The transmission rate of each of the sub-streams is such that an individual sub-stream has a transmission rate that is less than the maximum transmission rate of a corresponding channel on a provider's network. *Id.* In this manner the high data rate datastream can be transmitted from one segment of a customer's network to another segment of a customer's network through a provider network that does not have a single data circuit capable of handling the high data rate datastream. Upon arriving at a

destination, the multiple lower data rate datastreams are re-combined to reconstitute the single high data rate datastream. By performing decomposition and then re-composition of a high data rate datastream, few if any changes need to be made to the underlying provider network infrastructure to allow transmission of the high data rate datastream across the provider network.

Applicants respectfully submit that Dugan does not provide enabling disclosure of the present invention as described both above and in the Application. As an initial matter, Dugan never provides an enabling description of a single high data rate datastream that is decomposed into lower data rate datastreams by Dugan's disclosed device. As the Examiner acknowledges, Dugan teaches “[a]fter a significant amount of the signal processing is done, the one hundred ninety-two 51 Mb/s signals are divided into four groups, with each group containing 2.5 Gb/s worth of data, for processing into the final 10 Gb/s datastream. The innovation here avoids combining the four groups electrically, but rather, combines them optically via WDM in the transmitter. Likewise, at the receive end of the system, the signals are processed into four groups following the optical receiver.” Office Action, pp. 3-4 (citing Dugan 7:19-27). This quotation in the Office Action establishes that Dugan is, at best, teaching the opposite of what the present invention discloses and claims. Dugan takes a plurality of low data rate datastreams (one hundred ninety-two 51 Mb/s signals), combines that plurality of datastreams into four higher data rate datastreams (four 2.5 Gb/s groups), which are then subsequently optically combined into a single high data rate datastream (10 Gb/s datastream) that gets transported over a provider network from one customer site to another. As can be readily seen from the above description of the present application and the claims, this is not what the present Application lays claim to. While Dugan merges multiple datastreams into one fiber (“prior to transmission the separate wavelength channels are multiplexed into one

fiber," Dugan 3:3-5), the present invention takes a high data rate datastream that cannot be transmitted on one circuit over the provider network and divides it into multiple fiber channels for transmission through a provider network.

Dugan's purpose is further emphasized in the background of the invention section of Dugan's disclosure. Dugan describes a desire to push the maximum transmission rate of existing optical fiber in a provider network to data rates of 10 Gb/s or higher. *See* Dugan 1:48-50, 2:32-35. Dugan purports to present a mechanism for transmitting a high data rate datastream through a single optical fiber without reconstructing a provider network. The present application, as discussed above and as claimed, takes a different approach.

For at least the above reasons, and reasons expressed in prior Office Action responses, Applicants respectfully submit that Claims 1-6, 9-18, 20-28 and 30-34 are allowable over Dugan. Applicants respectfully request Examiner's reconsideration and withdrawal of the rejection of these claims.

*Rejection of Claims under 35 U.S.C. § 103*

Claims 7, 8, 19, 29 and 35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dugan in view of U. S. Patent No. 5,867,484 issued to Shaunfield ("Shaunfield"). Applicants respectfully traverse these rejections.

In order for claims to be rendered invalid under 35 U.S.C. § 103, the subject matter of the claims as a whole would have to be obvious to a person of ordinary skill in the art at the time the invention was made. *See* 35 U.S.C. § 103(a). This requires: (1) the references must teach or suggest all of the claim limitations; (2) there must be some teaching, suggestion or motivation to combine references either in the references themselves or in the knowledge of the art; and (3) there must be a reasonable expectation

of success. *See MPEP 2143; MPEP 2143.03; In re Rouffet*, 149 F.3d 1350, 1355-56

(Fed. Cir. 1998).

As stated above, Applicants submit that Dugan does not disclose each limitation of the independent claims from which the above-referenced dependent claims depend. The Office Action presents no discussion that Shaunfield provides any disclosure of the missing limitations discussed above. Therefore, for the reasons discussed above with regard to the independent claims, Applicants respectfully submit that the combination of the references does not teach or suggest all of the claim limitations as required by 35 U.S.C. § 103(a). For at least these reasons, the combination of references cannot be said to render obvious Claims 7, 8, 19, 29, and 35.

**Dependent Claims 7, 19, 29, and 35:** Applicants respectfully submit that neither Dugan nor Shaunfield provide disclosure of the claimed protocol processing being performed on an input datastream or an output data stream, or the corresponding protocol processors. As support for disclosure of protocol processing, the Office Action cites to Shaunfield 16:38-50:

The optical bus controller 120 includes an optical-electric interface 150, comprising a photo detector circuit 152 for converting the incoming optical signals on the downstream fiber 24a to corresponding serial electrical signals on line 156. The electrical signals on the serial data line 156 correspond identically to the optical signals on the serial downstream fiber 24a. The optical/electrical interface 150 also includes a laser driver and corresponding circuits 154 for converting the serial electrical signals on line 158 to corresponding optical signals on the output downstream fiber 14a. The interface 150 is of conventional design, where the laser driver 154 includes temperature, aging and other compensation circuits well known in the art.

Shaunfield 16:38-42. Applicants respectfully submit that the cited disclosure refers to an optical bus controller that converts incoming optical signals to electrical signals and vice versa and not a protocol processor as presented in the claims.

Applicants first note that Claims 7, 19, 29 and 35 have each been amended to clarify and distinguish the claimed protocol processor (or protocol processing) from Shaunfield's optical-electrical converter cited in the Office Action. There is no disclosure in Shaunfield of a protocol stack associated with the cited optical-electrical converter as now claimed. These claim amendments find their support in the original Application. *See, e.g.*, Application, p.3, ll.26-30.

Applicants respectfully submit that the present Application distinguishes between a protocol processor and an electrical-optical converter. *See, e.g.*, Application Fig. 5 (Element 112: Electrical-Optical Converter; Element 202: Protocol Processor). Descriptions of these elements clearly distinguish their purpose. *See, e.g.*, Application, p.3, ll.28-30 ("Network elements 100 and 101 include protocol processors 102 and 103, which provide a standard protocol stack that ensures that the information being transported is appropriately processed and routed"); Application, p.4, ll.3-14 ("Ports 108 and 110 interface electrical-optical converters 112 and 114 with protocol processors 102 and 103 by transmitting high-speed datastreams 104(1)-(N) and 106(1)-(N) to/from protocol processors 102 and 103. ... In operation, electrical-optical converters 112 and 114 convert high-speed datastreams 104(1)-(N) and 106(1)-(N) between the electrical and optical domains."). Therefore it is inappropriate to equate a protocol processor such as that claimed with an electrical-optical converter such as that cited from Shaunfield. Further, it should be noted that the speed of the protocol processors is one of the motivating factors for the invention disclosed in the present Application. *See, e.g.*, Application, p.6, ll.20-27 ("[M]ost existing solutions to such a problem concentrate on partially reconstructing the underlying fiber-optic systems such that the reconstructed network can support the higher data transmission rates of protocol processors 200 and 202."); Application, p.8, ll.10-17 ("[W]hen and if the speed of the protocol processors

operating in the electrical domain again exceed this new upper limit, solutions analogous to those depicted in Figs. 3 and 4 will once again require implementation.”). Such motivation does not involve electrical-optical conversion rates.

Applicants further respectfully submit that the Office Action does not establish a motivation to combine the references in the references themselves or in the art. Dugan discloses both a “4:1 wavelength division multiplexer circuit 46 [that] generates optical output” (Dugan 5:32-34) and a 1:4 wavelength division demultiplexer circuit connected to the optical fiber (Dugan 6:2-6) that are part of Dugan’s optical transmitter (Fig. 1) and optical receiver (Fig. 2), respectively. Since the optical transmitter and optical receiver of Dugan are both directly connected to the optical fiber, there is no suggestion to include Shaunfield’s additional optical bus controller. There would be no advantage to providing both Dugan’s optical transmitter/receiver and Shaunfield’s optical bus controller in the same device as they both provide connectivity to fiber but for diverse purposes that have no suggestion of combinability. The Examiner must provide evidence to suggest the combination and “[b]road conclusory statements regarding the teachings of multiple references, standing alone, or not ‘evidence.’” *See In re Dembicza*k, 50 U.S.P.Q. 2d 1614, 1617 (Fed. Cir. 1999). Applicants respectfully submit that the particular part of the cited references relied upon by the Examiner and pertinence of each reference has not been clearly explained, especially with regard to the motivation to combine references in the first full paragraph on page 10 of the Office Action. Further, the Office Action does not establish that such a combination of the teachings in these references would meet with success, as required.

Even if it were taken that the combination of Dugan with Shaunfield resulted in an operable device (a supposition which Applicants present only for the sake of this argument), Applicants respectfully submit that the combination does not teach the

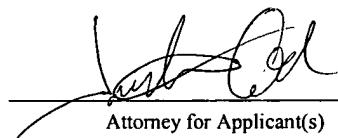
invention as claimed. As stated above, Dugan does not disclose a high data rate input data stream being decomposed into a plurality of lower data rate data streams; instead Dugan takes a plurality of low data rate input data streams and combines them into a smaller plurality of higher data rate data streams. Shaunfield is not presented for a proposition that it corrects that defect of Dugan, but merely for the proposition that an optical-to-electrical converter is a protocol processor. Even were Shaunfield to be included as part of the Dugan device (e.g., within Dugan's disclosed Optical Transmitter Module 10), the combination would not provide the protocol processing claimed. Further, the combination would provide no new functionality to the Dugan Optical Transmitter Module. Without a teaching of the claimed invention, the combination of Dugan and Shaunfield cannot be said to render invalid the above-referenced claims.

For the reasons given above, and those expressed for the independent claims, Applicants respectfully submit that Claims 7, 19, 29 and 35 as amended, and all claims dependent therefrom, are allowable and request Examiner's reconsideration of the rejections and withdrawal of the same.

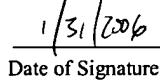
**CONCLUSION**

In view of the amendments and remarks set forth herein, the application and the claims therein are believed to be in condition for allowance without any further examination and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is invited to telephone the undersigned at 512-439-5090.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, COMMISSIONER FOR PATENTS, P. O. Box 1450, Alexandria, VA 22313-1450, on January 31, 2006.

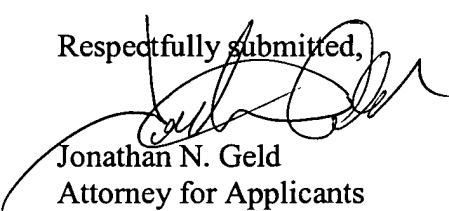


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